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Curcumin-Loaded Phenethyl Isothiocyanate Nano-Spheres: Preparation, Stability Study, and Its Implication for Cataract Prevention

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Abstract : This study examines the impact of curcumin-loaded nano-spheres in the form of emulsions on fish eye cataracts. Curcumin nanoemulsions were prepared by using phenethyl isothiocyanate. Nanoemulsions were synthesized by ultrasound-assisted method at 150 Watt. A zeta potential measurement for curcumin-loaded nanoemulsions was found to be -30.7eV, -13.4eV, and -9.55eV, and particle size was found to be 149.3 nm, 245.3 and nm 403.5 nm using particle size analyzer respectively for different conditions. The surface morphology of nano-spheres was examined by FE-SEM analysis. The zeta potential measured indicates its stability for corresponding nano-spheres. The anti-cataract application was studied by using isolated fish eye lenses. The cataract was induced using high glucose concentrated solution. The biochemical parameters in the form of reduced glutathione were measured to interpret the anti-cataract ability of curcumin-loaded nanoemulsions.

Keywords : curcumin, nano, cataract, nanoemulsion
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